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10/662,444

09/16/2003

Toshiyuki Terada

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EXAMINER

SAWHNEY, HARGOBIND S

ART UNIT

PAPER NUMBER

2875

DATE MAILED: 02/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/662,444

Applicant(s)

TERADA ET AL.

Examiner

Hargobind S. Sawhney

Art Unit

2875

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because line 7 includes the legal phrase "comprising". The phrase "comprising may be replaced with -- including --
Correction is required.

Claim Objections

2. Claims 1-5 are objected to because of the following informalities:
Claim 1, line 4, " primaries" should be rephrased as – three primaries red, green, and blue – for definite recitation. Each of claims 2-5 included similar deficiency. Therefore, claims 2-5 are also objected.
Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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4. Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, lines 8 and 9, "a current of between 3 and 50 times a standard of said LED element" compares a current with the base ("standard") which is not defined in the specification, or made known with industry recognized codes. The above indicated limitation "a current of between 3 and 50 times a standard of said LED element" may be rephrased as --, a current of between 3 and 50 times the rated current of said LED element --.

Claim 2, line 4, "fluorophor generating light" is confusing. The recited "fluorophor" is a light wavelength converting material. The flourophor cannot generate light. Similar deficiency also exists in other recitations included in the claim.

Claims 2-5 are necessarily rejected because of their dependency on the rejected base Claim 1.

Claim 2 of the instant application has been examined considering:

- "fluorophor generating yellow-light" as – fluorophor converting blue light to yellow-light --; and
- "a current of between 3 and 50 times a standard of said LED element" as -
- a current of between 3 and 50 times the rated current of said LED element --.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawakami (US Patent Application Pub. No.: US 2002/0025157 A1) in view of Choi et al. (US Patent No.: 5,313,188).

Kawakami (US Patent Application Pub. No.: US 2002/0025157 A1), hereinafter referred as Kawakami, discloses a photographic light source device 10 (Figures 1, 3A and 3B) comprising:

- a light source 38 including a plurality of light emitting diodes (LEDs) elements 38R, 38G and 38B generating red, green and blue light respectively (Figures 3A and 3B, Para. 0059);
- the LED elements 38R, 38G and 38B arranged in rows parallel with the longitudinal direction of the photograph (Figures 3A and 3B); and
- a case 30 including a lens with fresnel cuts (Figure 1, Para. 0055) applied in linear direction parallel to the arrangement direction of the LED elements 38R, 38G and 38G.

Although element 32 (Figure 1) shows a few circular fresnel cuts, normally the fresnel cuts are spread over the entire rectangular surface of

the lens. The fresnel cuts, truncated with edges of the rectangular lens, form the cuts parallel to the LED row direction.

However, Kawakami does not teach a drive performance with a current between 3-50 times the rated current of the LED elements, and the lighting time duration between 10-600 ms.

On the other hand, Choi et al. ('188) discloses an LED light including super luminescent LED light having drive performance (Figure 1) with current 300 ma - which is significantly larger than the rated current of 20 ma of the LEDs -, with the lighting duration less than 1 ms.

It would be have been obvious to one of ordinary skill in the art at the time of the invention to modify the LED drive performance of Choi et al. ('188) for a current between 3-50 times the rated current of the LED elements, and lighting duration between 10-600 ms, since it has been held that discovering an optimum value of result effective variables involves only routine skill in the art.

In addition, it would be have been obvious to one of ordinary skill in the art at the time of the invention to modify the photographic light source device of Kawakami by providing LED drive performance as taught by Choi et al. ('188) optimized as indicated above, for the benefits and advantages of significantly larger light flux output for short time duration.

Regarding Claim 4, Kawakami in view of Choi et al. ('188) discloses the light source device further including:

- the LEDs 38R, 38G and 38B arranged in a matrix having a number of rows and a number of columns more than the number of primary colors red, green and blue (Kawakami, Figure 3B).

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawakami (US Patent Application Pub. No.: US 2002/0025157 A1) in view of Choi et al. (US Patent No.: 5,313,188) as applied to claim 1 above, and further in view of Fujiwara et al. (US Patent Application Pub. No.: US 2002/0153835 A1).

As best understood, Kawakami in view of Choi et al. ('188) discloses the light source device further including red, blue and green LEDs arranged in matrix.

However, neither combined nor individual teaching of Kawakami and Choi et al. ('188) specifically teaches a white LED element combining: a blue light LED and fluorophor converting the blue light to yellow.

On the other hand, Fujiwara et al. (US Patent Application Pub. No.: US 2002/0153835 A1), hereinafter referred as Fujikawa, teaches an LED light source 1 (Figures 1 and 2) including a blue LED 4; a fluorophor 3 converting a portion of blue light, emitted by the blue LED 4, to yellow; and producing white light by mixing the yellow light and blue light emitted by the blue LED itself (Figures 1 and 2, Para. 0073).

It would be have been obvious to one of ordinary skill in the art at the time of the invention to further modify the photographic light source device of Kawakami in view of Choi et al. ('188) by providing the white light source as taught by Fujiwara for the benefits and advantages of providing clear and high-luminance emission without color non-uniform spread of the colors.

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawakami (US Patent Application Pub. No.: US 2002/0025157 A1) in view of Choi et al. (US Patent No.: 5,313,188) as applied to claim 1 above, and further in view of Chan (US Patent No.: 4,666,276).

Kawakami in view of Choi et al. ('188) discloses the light source device further including an electrical contact 22 between the case 30 and the mobile device – camera (not shown). However neither combined nor individual teaching of Kawakami and Choi et al. ('188) specifically teaches electrical contact between the camera - mobile device – being realized with a spring contact.

On the other hand, Chan ('276) discloses a hot shoe attachment 14 with a camera 12 (Figure 1, column 2, lines 40- 44), the hot shoe attachment further including a spring 52 urging contact with for electrical connection with the camera (Figures 1 and 2, column 3, lines 47-50). Note: The use of springs in a hot shoe of a flash is well known in the camera art for positive electrical contact.

It would be have been obvious to one of ordinary skill in the art at the time of the invention to further modify the photographic light source device of Kawakami in view of Choi et al. ('188) by providing the hot shoe with spring elements as taught by Chan ('276) for the benefits and advantages of providing positive and secure structural contact for reliable electrical connection needed for operation of the device.

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawakami (US Patent Application Pub. No.: US 2002/0025157 A1) in view of Choi et al.

(US Patent No.: 5,313,188) as applied to claim 1 above, and further in view of Kimura et al. (US Patent No.: 5,739,552).

Kawakami in view of Choi et al. ('188) discloses the light source device including a plurality of red, blue and green light LEDs arranged in matrix. However neither combined nor individual teaching of Kawakami and Choi et al. ('188) teaches a light source device including a plurality of stacked red, blue and green LEDs elements emitting light in the direction of the illuminating axis of the device.

On the other hand, Kimura et al. ('552) teaches a semiconductor light emitting diode assembly (Figures 1a-1e) including LEDs emitting red, green and blue color light, and the LEDs adhered together forming a single chip (Figures 1a-1e, column 7, lines 32-40) configured in a stack format.

It would be have been obvious to one of ordinary skill in the art at the time of the invention to further modify the photographic light source device of Kawakami in view of Choi et al. ('188) by providing stacked LEDs as taught by Kimura et al. ('552) for the benefits and advantages of efficient mixing of light by getting the light of three primary colors emitted from the same portion of the LED device.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Sommers (US Patent Application Pub. No.: US 2003/0180037 A1); Chin (US Patent No.: 6,525,464 B1), Bebenroth (U.S. Patent No. 6,329,760 B1); Kishimoto et al. (U.S. Patent No.: 5,895,128) and Galginaitis (U.S. Patent No.: 3,611,069)

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hargobind S Sawhney whose telephone number is 571 272 2380. The examiner can normally be reached on 6:15 - 2:45.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on 571 272 2378. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HSS
2/17/2005



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